



Review Papers for Applied Nano Science and Technology

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Message from the Guest Editor

Despite the fact that nanotechnology is well established in different fields of applications, crucial expectations surrounding nanotechnology remain an important challenge for future developments. These challenges include, for example, (1) a generally usable building-block strategy for hierarchically organized functional molecular architectures in addition to the natural systems of DNA and proteins; (2) the shrinking of machines and reactors to the nanoscale; (3) a general concept for integration of nanomaterials and nanomachines and devices into natural material cycles; (4) a self-sustainable time-scale and life-time management for operation, re-use, and recycling of nanosystems; (5) construction and operation of autonomous nanosystems with balanced freedom and external control; and (6) realization of nanosystems with autonomous entropy management. Important parts of this accumulated knowledge will be reflected in a collection of review articles, progress reports and mini reviews in this Special Issue.

Keywords : nanomachines; nanosystems; functional nanomaterials; nanodevices; nanotechnology for renewable fuels; biomimetic nanodesign; nanoreactors

